

PATENT CLAIMS

1. A system for sensing relative position between chassis (5a, 5b) and axle (3) on a vehicle, which vehicle is provided with a so-called V-rod (1) mounted between the chassis (5a, 5b) and the axle (3) where the pointed end of the V is connected by a ball joint (2) to the axle (3) of the vehicle and the opposite ends (1a, 1b) of the V-rod (1) are connected to the chassis (5a, 5b) of the vehicle, which ball joint (2) comprises a partly ball-shaped body (8) permanently fixed to the axle or the V-rod, encircled by a complementarily shaped collar (9) arranged round the whole or parts of the ball-shaped body (8), which ball joint (2) is covered by a cap or housing, characterised in that on the ball (8) or in connection with the housing in the ball joint there are mounted a sensor (6) and an identification area (7) which is detected by the sensor (6) respectively, which identification area (7) is provided with information for registering position in at least one direction and that the sensor (6) registers the position of the identification area (7) in at least one direction.
2. A system according to claim 1, characterised in that the identification area (7) which is detected by the sensor (6) is provided with information for registering position in two directions and that the sensor (6) registers the position of the identification area (7) in the two directions.
3. A system according to claim 1 or 2, characterised in that the sensor (6) is of a type that detects the identification area (7) in one of the following ways: mechanical identification, distance identification with light, distance identification based on surface state as light reflection, magnetic identification or ultrasound.
4. A system according to claim 1 or 2, characterised in that the identification area (7) is provided with information consisting of a number of individual, dissimilar sections with different characteristics such as: reflecting power, material thickness, surface state or mechanical profile.
5. A system according to claims 1-4, characterised in that the identification area (7) which is detected by the sensor is provided with information for registering position in two directions where the information in one of the directions (7c) provides progressive sensing while the information in the other direction provides sensing of the extreme points (7a, 7b) and that the sensor (6) progressively registers the position of the identification area in one of the two directions, in addition to which the sensor (6) registers extreme points (7a, 7b) in the second of the two directions.

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6. A system according to claims 1-4, characterised in that the identification area (7) which is detected by a sensor (6) is provided with information for registering the position in two directions where the information in both directions provides progressive sensing so that the sensor(s) (6) progressively registers the position of the identification area (7) in one or both of the two directions.

7. A system according to claims 1-6, characterised in that the information in the identification area (7) is provided with a majority of individual sections for progressive detection of the position and a minority of individual sections for registering position at the extreme points (7a, 7b).

8. A system according to claims 3-4, characterised in that the sensor is connected to the identification via a mechanical connection.

9. A system according to claim 8, characterised in that the sensor is a torsion potentiometer (12).

10. A system according to one or more of the above claims, characterised in that the signal representing the detected position in one or two directions is transmitted from the sensor (6) to a processing unit, which in the event of rapid changes of position activates an alarm signal for play in the ball bearing (2).

11. A system according to one or more of the above claims, characterised in that the signal representing the detected distance in the direction representing heeling is transmitted from the sensor to a processing unit where accumulated heeling relative to a neutral starting point is registered, and which processing unit activates an alarm signal for dangerous heeling when the accumulated distance representing heeling exceeds a predetermined value.